

Claims:

1. An integrated circuit for monitoring and controlling multiple power outputs from a power supply that generates a primary power voltage and one or more secondary power voltages derived from the primary power voltage, comprising:

input means for receiving the primary and secondary power voltages from the power supply;

means for controlling the primary and secondary power voltages to generate controlled voltage power outputs;

means for comparing a signal representative of the primary power voltage to a reference signal;

means for sensing when the primary power voltage reaches or exceeds a threshold reference level; and

means for delaying connection of the primary and secondary power voltages to the controlled voltage power outputs for a selected delay time after the primary power voltage reaches the reference threshold level.

2. The integrated circuit of claim 1 further comprising means for generating a power up signal for indicating that all the monitored output voltages of the monitored power supply are at or above a useable and effective voltage level.

3. The integrated circuit of claim 1 wherein the means for comparing comprises a voltage divider and a comparator, wherein the comparator is coupled to a threshold reference voltage and the voltage divider is coupled to the primary power voltage and to the comparator.

4. The integrated circuit of claim 3 wherein the delaying means comprises a timing circuit and the output of the comparator is coupled to the timing circuit for delaying connection of the input power supply voltages to the controlled outputs for the selected delay time.

5. The integrated circuit of claim 1 further comprising a linear controller for controlling the output voltage of each of the power output voltages of the power monitor circuit.

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6. A computer system with monitored power comprising in combination:
a power supply for generating a primary dc power voltage and one or more secondary
dc power voltages derived from the primary dc power output, a motherboard comprising
multiple units including a memory unit and a central processing unit, wherein said units may
require different operating voltages; and a power monitoring integrated circuit disposed
between the power supply and the motherboard for controlling supply of power from the
power supply to the motherboard, said power monitoring circuit comprising
input means for receiving the primary and secondary power voltages from the power
supply;

means for controlling the received power voltages to generate controlled voltage
power outputs;

means for comparing a signal representative of the primary power voltage to a
reference signal;

means for sensing when the primary power voltage reaches or exceeds a threshold
reference level; and

means for delaying connection of the controlled power output voltages to the computer
for a selected delay time after the primary power voltage reaches the reference threshold
level.

7. The computer system of claim 6 further comprising means for generating a power up
signal for indicating that all the monitored output voltages of the monitored power supply are
at or above a useable and effective voltage level.

8. The computer system of claim 6 wherein the means for comparing comprises a voltage
divider and a comparator, wherein the comparator is coupled to a threshold reference voltage
and the voltage divider is coupled to the primary power voltage and to the comparator.

9. The computer system of claim 8 wherein the delaying means comprises a timing
circuit and the output of the comparator is coupled to the timing circuit for delaying
connection of the controlled power output voltages to the computer for the selected delay time.

10. The computer system of claim 6 wherein the means for controlling the output voltages

comprises a plurality of linear controllers with each linear controller controlling the output voltage of one of the power output voltages of the power monitor circuit.

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11. A method for monitoring and controlling power from a power supply that generates a primary power voltage and one or more secondary power voltages derived from the power voltage, comprising:

receiving the primary and secondary power voltages from the power supply;
controlling the received power voltages to generate controlled voltage power outputs
comparing a signal representative of the primary power voltage to a reference signal;
10 sensing when the primary power output voltage reaches or exceeds a threshold

reference level; and

delaying connection of the power supply controlled voltage power outputs for a selected delay time after the input power supply reaches the reference threshold level.

15 12. The method of claims 11 further comprising generating a power up signal for indicating that all the monitored output voltages of the monitored power supply are at or above a useable and effective voltage level.

20 13. The method of claims 11 the step of comparing comprises voltage dividing a signal representative of the primary power voltage and comparing the voltage divided signal to a threshold reference voltage.

25 14. The method of claims 11 wherein the delaying step comprises timing an interval starting when the voltage divided signal exceeds the threshold reference signal and delaying connection of the controlled voltage power outputs to the computer for a selected delay time.

30 15. The method of claims 11 further comprising linearly controlling each of the power output voltages of the power monitor circuit.